

Wisconsin 2007 Point Source Emissions

Estimated Daily Emissions for the
2007 Baseline and Step 1 & 3 of the
Wisconsin Regional Proposal

Introduction

- This presentation illustrates Wisconsin's 2007 baseline and controlled NOx emissions (tons per day) for electric utility, industrial, and commercial point sources under the regional reduction proposal (Indiana, Illinois, and Wisconsin).
- The Wisconsin proposal contains a two phases of reductions with an evaluation step in between for a three step approach. The reductions are Step 1: EGU > 25 MW = 0.25, Industrial Sources at the NOx SIP level of control; and Step 3: EGU > 25 MW = 0.20 or 0.15 based on trigger levels for monitored ozone concentrations (refer to Wisconsin Regional Proposal for details). A comparison of daily 2007 baseline emissions and as controlled under Step 1 and a maximum proposed Step 3 are shown in two respective tables.
- Each Table is followed by graphics illustrating the relative impacts of each step on daily NOx emissions density.

Introduction - cont'd

- NOx emissions for two alternative control approaches are also presented in each table to illustrate how different program structures could potentially be utilized to meet each step of reduction. These alternatives are draft estimates of potential reductions and are meant only for discussion purposes only. Refer to “Elements of Control Approaches” at the end of this presentation for details of each control approach.
- Description of Step 1
 - 1 - EGU > 25 MW = 0.25 lbs/mmBtu, Industrial Boilers > 250 mmBtu/hr = 60% reduction from uncontrolled baseline.
 - 1a. - Statewide approach - changes in describing affected EGU and Industrial units and potential controls vs SIP Call.
 - 1b. - Southeast focus - Assumed relative level of control on all major NOx sources only in a southeast region of Wisconsin (refer to map for affected counties)

Introduction - cont'd

- Description of Step 3
 - 3 - EGUs > 25 MW initiate further reduction to either a 0.2 or 0.15 lbs/mmbtu emission rate.
 - 3a. & 3b. - Implementing 1b. with different levels of EGU control along with 1a in the remainder of the state to simulate deeper reductions.

Wisconsin Proposal Step 1 – Point Source Emissions and Comparison of Several Control Approaches (Draft 2/16/2000)

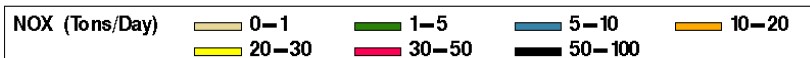
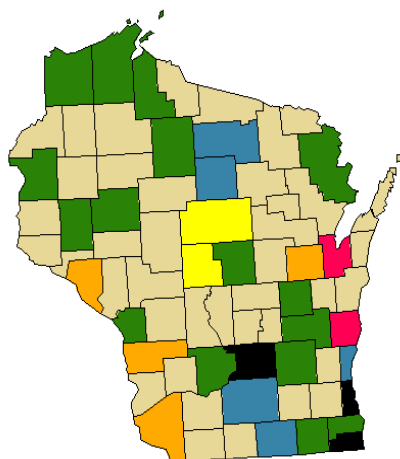
Scenario	State wide Total	South East Sector	North West Sector	No. of Affected Units	Reduction Potential (TPD)
2007 Emission Baseline	442	328	114	2,392	
Step 1: EGU @ 0.25 / Ind @ NOx SIP	291	202	89	96	151
Step 1a: Statewide w/ Adjustments	274	189	85	83	168
Step 1b: South East Focus	269	157	114	446	173

Wisconsin Point Source NOx Emissions

February 15, 2000

Tons/Day

Base



Point source data supplied by Tom Karman, WDNR.
All data should be considered DRAFT only.

2007 Base 1

Draft 2/15/2000

NOx Emitted (Tons/Day)

2007 Base	442
SIP w/ EGU@0.25.....	291
S.E. Focus	269
Statewide w/ Adjustments.....	274

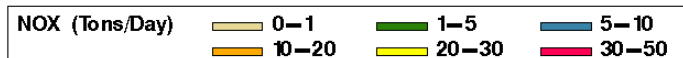
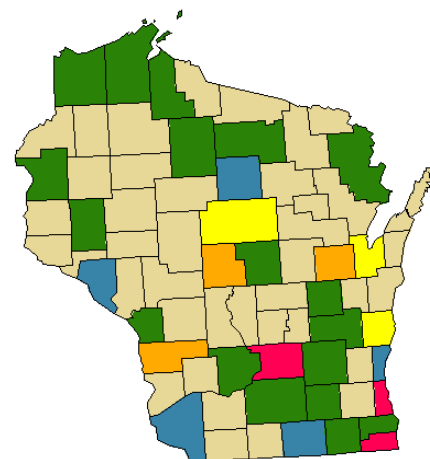
Map created by Gwen Judson, WDNR. Point source data supplied by Tom Karman, WDNR.
All data should be considered DRAFT only.

Wisconsin Point Source NOx Emissions

Tons/Day

2007 EGU 0.25-Ind SIP

Step 1



Map created by Gwen Judson, WDNR.

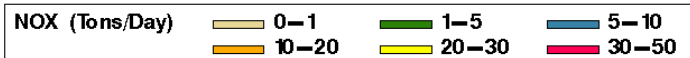
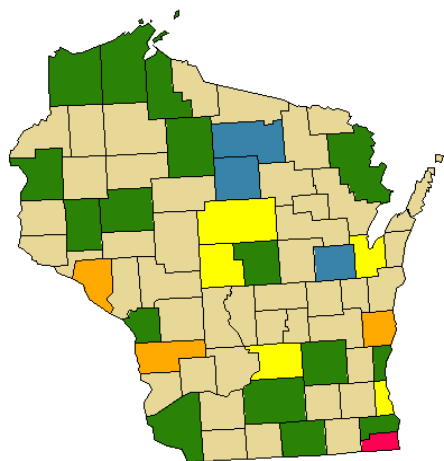
Wisconsin Point Source NOx Emissions

February 15, 2000

Tons/Day

2007 Southeast Focus

Step 1b



Point source data supplied by Tom Karman, WDNR.
All data should be considered DRAFT only.

Map created by Gwen Judson, WDNR.

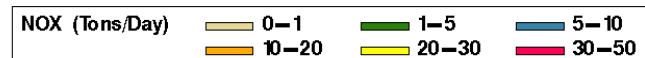
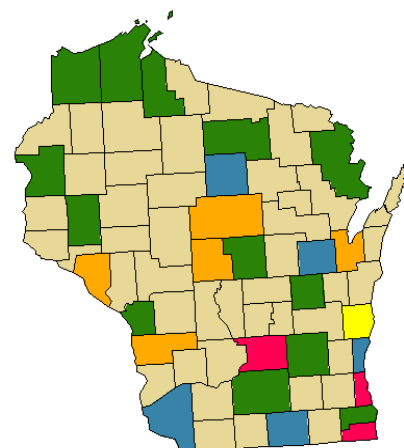
Wisconsin Point Source NOx Emissions

February 15, 2000

Tons/Day

2007 2D

Step 1a



Point source data supplied by Tom Karman, WDNR.
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Map created by Gwen Judson, WDNR.

Wisconsin Proposal Step 3 – Point Source Emissions and Comparison of Several Control Approaches (Draft 2/16/2000)

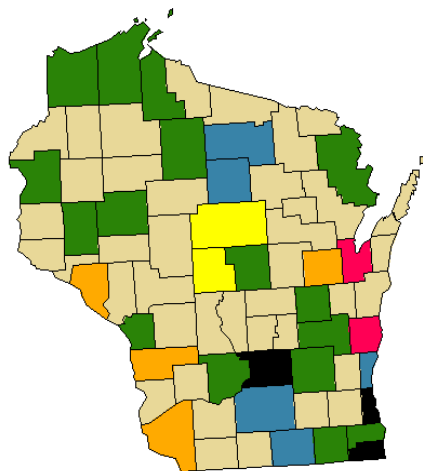
Scenario	State wide Total	South East Sector	North West Sector	No. of Affected Units	Reduction Potential (TPD)
2007 Emission Baseline	442	328	114	2,392	
Step 3: EGU @ 0.15 / Ind @ NOx SIP	218	142	76	96	230
Step 3a: S.E. Focus (EGU=0.2) / N.W. Statewide w/ Adjustments	242	157	85	469	200
Step 3b: S.E. Focus (EGU=0.15) / N.W. Statewide w/ Adjustments	211	126	85	469	231

Wisconsin Point Source NOx Emissions

February 15, 2000

Tons/Day

Base



Point source data supplied by Tom Karman, WDNR.
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Map created by Gwen Judson, WDNR.

Wisconsin Point Source NOx Emissions

2007 Base 1 February 15, 2000

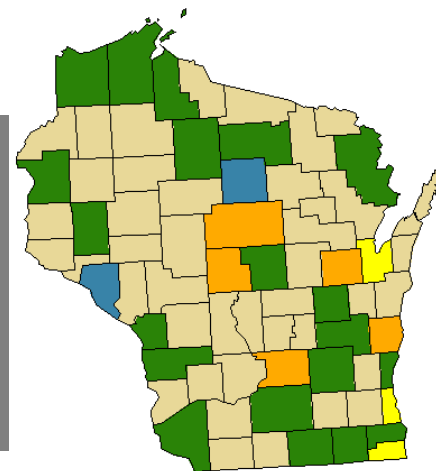
Tons/Day

2007 EGU 0.15 - Ind SIP

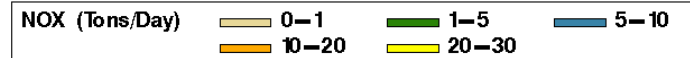
Draft 2/15/2000

NOx Emitted (Tons/Day)

2007 Base	442
SIP Call	218
S.E. Focus (EGU=0.2) / N.W. = Statewide w/ Adjustments	
.....	242
S.E. Focus (EGU=0.15) / N.W. = Statewide w/ Adjustments	
.....	211



Step 3



Point source data supplied by Tom Karman, WDNR.
All data should be considered DRAFT only.

Map created by Gwen Judson, WDNR.

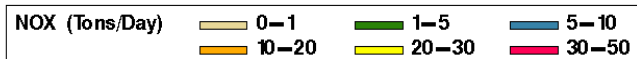
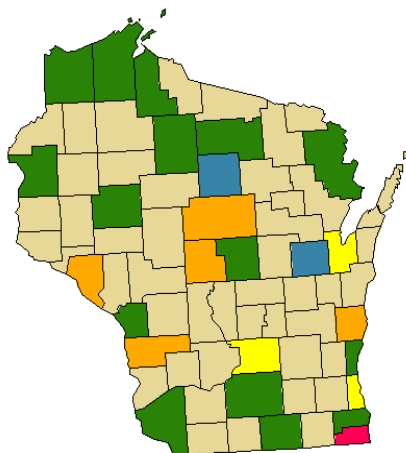
Wisconsin Point Source NOx Emissions

February 16, 2000

Tons/Day

2007 Southeast Focus .20 - NWSA

Step 3a



Point source data supplied by Tom Karman, WDNR.
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Map created by Gwen Judson, WDNR.

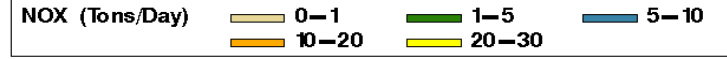
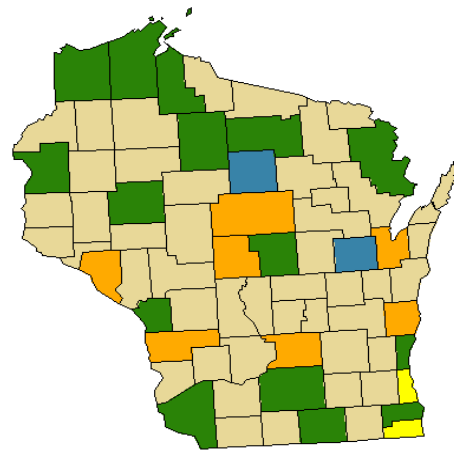
Wisconsin Point Source NOx Emissions

February 16, 2000

Tons/Day

2007 Southeast Focus .15 - NWSA

Step 3b



Point source data supplied by Tom Karman, WDNR.
All data should be considered DRAFT only.

Map created by Gwen Judson, WDNR.

Elements of Illustrative Control Approaches for Point Source NO_x Reductions

Elements of Point Source Control Concepts

Basic premise of Geographic Split along a Southwest to Northeast Axis – This splits the state into Southeast and Northwest sectors for structuring a point source control program. The following control options are evaluated along this axis.

2007 Emission Baseline – Electric utility growth at 12%, Large Industrial = SIP Growth, All other Industrial at 1995 emission levels.

Control Concepts

1) EGU=0.25 / Ind=SIP – EGU SIP Call units with an emission rate of 0.25 lbs/mmbtu, Large Industrial Boilers at 60% reduction from uncontrolled levels.

2) S.E. Focus – All control in S.E. region of State.

- EGU Boilers > 250 mmbtu/hr = 0.2 lbs/mmbtu
- EGU Boilers < 250 mmbtu/hr = Best Combustion Modifications rates
- No controls assumed on EGU combustion turbines or IC engines
- Industrial Boilers, Kilns, Recovery Boilers, and Furnaces > 100 mmBTU/hr = Best Combustion Modifications (maximum LNB/OFA)
- Boilers 50-100 mmbtu/hr w/ low excess air requirement (tune-up or O₂ monitoring)
- IC Engines / Turbines = Ignition Timing

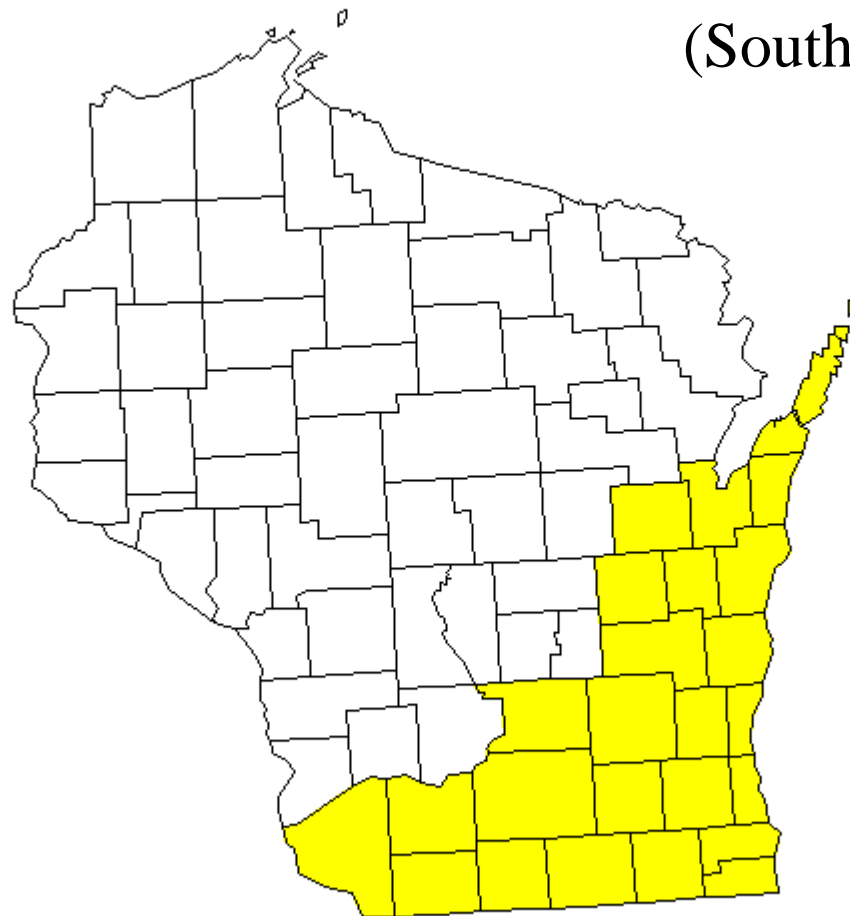
3) Statewide w/ Adjustments – All controls distributed over a statewide region .

- S.E. EGU Boilers > 250 mmbtu/hr = 0.25
- S.E. EGU Boilers < 250 mmbtu/hr = Best Combustion Modifications
- All N.W. EGU Boilers = Best Combustion Modifications (including < 250 mmbtu/hr)
- Any Industrial Source (statewide) => 1 TPD emitter (11 Boilers and 4 Furnaces) = Best Combustion Modifications

Counties in the Diagonal Strategy

February 10, 2000

(Southeast Focus)



 County included.

All data should be considered DRAFT only.

Map created by Gwen Judson, WDNR.